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DR. SYDNEY ROBOTHAN MILLER, associate professor of clinical medicine in the Johns Hopkins Medical School and president of the American Congress of Internal Medicine, has joined the staff of the University of Maryland School of Medicine.

DR. W. MAGNER has accepted the position of director of the pathological department of the University of Toronto. He was formerly lecturer on pathology in University College, Cork.

DISCUSSION AND CORRESPONDENCE THE ACQUISITIVE INSTINCT IN CHILDREN AS AN EDUCATIONAL STIMULUS

THE educational value of the collections of various objects which children form has not received the universal recognition which it so well merits. The tendency to form collections of such objects as stamps, coins, post cards and bird's eggs has as its basis the instinct of acquisition. A child of two years hoards bits of cloth, clothes pins, and buttons without knowing why he does it. The object appeals to the child's senses, that is, the perception of the object stimulates his instinctive desire for possession.

Sometimes an epidemic of collecting will arise in a neighborhood as occurred in a suburb of Chicago, a few years ago, when most boys between the ages of eight and fourteen collected the pictures of baseball players coming with certain brands of tobacco. Boys collected the pictures because they saw others doing it, and because of that instinctive craving for things which please the senses. Here rivalry appeared. Boys vied with each other to see who could get the greatest number of pictures, and a value was placed upon them far in excess of their intrinsic worth.

The desire to collect without a definite purpose other than to see how many objects can be brought together continues into adolescence. At the age of twelve or thirteen, however, collections often assume an emotional character as those made up of souvenir spoons, theater ticket stubs, or later dance programs.

Up to this stage the instincts of acquisition, imitation, and emulation have furnished the stimulus for the collective mania, and even in collections of natural objects, reasoning has not played a basal part. Judgments were formed as to relative value, methods of acquisition, and arrangement of the objects, but as yet the purpose of collecting for systematic arrangement and study has not appeared.

Consider now the case of the stamp collector who has outgrown the desire for mere numbers. He considers methods of arrangement other than size or color, considering country and time of greater moment. He associates designs with historical events, and the portraits with national heroes. He notices the evolution of symbols and designs appearing on succeeding issues of stamps, as well as the progress made in printing and engraving from the earlier to the more modern representatives. Here is being developed the "scientific attitude of the mind," the expression of that desire to classify, arrange, and correlate fact. The comparing of concepts, of memory images, the formation of judgments, and reasoning enter into the mental process, while instinct is eclipsed by thought. Such a collection will furnish many lessons in reasoning; for in solving the problems arising in classification the habit of consistent thinking is materially aided.

Collections of natural objects as butterflies, shells, and leaves have an especially favorable influence upon the thought habit, but only if the desire to arrange and study systematically is present. The classification problems met with are so diverse and require such varied methods of approach that the training received in meeting them necessitates intense thought and a strong purpose.

It should be remembered, therefore, that a child's mania for collecting is the normal expression of an instinct; that this instinct can be diverted into emotional or intellectual channels; that when diverted intelligently it may be a great factor in the formation of the thought habit, the great purpose in any education. It seems well worth while to con-

sider methods by which the acquisitive instinct in children may be diverted by encouragement and suggestion so as to prove the stimulus for the higher forms of intellect.

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LINKAGE IN POULTRY

Two genes each of which is sex-linked must obviously be completely linked in the gametogenesis of the sex which is heterozygous for the sex gene. On Morgan's theory of inheritance they should also be partially linked in the homozygous sex, as in the female of *Drosophila*. I therefore decided to test for linkage between two well-known sex-linked genes of poultry, namely B, whose presence causes barring of melanic feathers, and S, which by inhibiting yellow pigmentation, converts "gold" into "silver" hackle feathers. A Brown Leghorn cock of composition bs/bs was therefore mated to Barred Plymouth Rock hens of composition BS. Their male children were of composition BS/bs. These were mated to bs Brown Leghorn hens, and have so far produced:

- 30 Barred silver BS/bs ♂ and BS ♀
- 17 Unbarred silver bS/bs ♂ and bS ♀
- 10 Barred gold Bs/bs ♂ and Bs ♀
- 21 Unbarred gold bs/bs ♂ and bs ♀

This corresponds to a series of spermatozoa 30 BS, 17 bS, 10 Bs, 21 bs, or 27 cross-overs out of 78. The cross-over value is therefore 34.6 per cent. with a probable error of 3.6 per cent., that is to say there is undoubtedly linkage. The numbers of barred and unbarred are practically equal, but there is a 50 per cent. excess of silver over gold, perhaps due to selective mortality.

The experiment is being continued, and it is hoped next year to obtain repulsion as well as coupling. If Pearl is correct in his view that one of the genes for high egg-laying is carried in the sex-chromosome, the economic importance of mapping it is considerable. For example if the locus of the egg-laying gene L_2 lies between those of B and S, then if B and S have been transferred together from a race of high-laying power to one of low-laying power, we shall know without further testing that, ex-

cept in the rare cases of double crossing-over, L_2 has been transferred with them.

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THE ZOOLOGICAL RECORD

The Zoological Record, which was founded in 1864 by English zoologists, has been issued regularly ever since and contains each year a complete bibliography of all publications connected with zoology. It is now the sole work of the kind, and is invaluable to all workers in every branch of zoology.

Previous to 1914 *The Zoological Record* formed part of the "International Catalogue of Scientific Literature," and was issued under the joint responsibility of the Royal Society and the Zoological Society. As the Royal Society found itself unable to proceed with the volumes of the "International Catalogue" after the issue for 1914, the Zoological Society has undertaken to prepare and issue the volumes for 1915-1920 inclusive at its sole financial risk.

It is the wish of the record committee of the Zoological Society to continue the publication of this most useful work, but it is obvious that they can not expect the Society to undertake the heavy financial liability involved in publication unless they receive reasonable support from working zoologists both at home and abroad.

I hope, therefore, that all working zoologists who agree with me that the suspension of the publication of the *Record* would have a most disastrous effect on the progress of zoology, will either subscribe themselves or will urge the librarians of the institutions with which they are connected to do so.

A prospectus and form of subscription either for the whole or separate divisions of the *Record* can be had on application to the Zoological Society.

W. L. SCLATER,
Editor

ZOOLOGICAL SOCIETY OF LONDON,
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METEOROLOGISCHE ZEITSCHRIFT

IN a letter received from Professor V. Conrad, the recently elected secretary of the